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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
RICHER, AARON M	
ART UNIT	**PAPER NUMBER**
2628	

NOTIFICATION DATE	DELIVERY MODE
10/18/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	09/944,341	SATO ET AL.	
	Examiner	Art Unit	
	Aaron M. Richer	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 3-5 of Pre-Brief Appeal Conference Request, filed July 16, 2007, with respect to the rejection(s) of claim(s) 9-12 and 14-16 under 35 USC 102(e) have been fully considered and are persuasive. Applicant's arguments also apply to the 35 USC 103(a) rejection of claim 13. Therefore, the rejections of these claims under 35 USC 102(e) and 35 USC 103(a) in view of Bhattacharjya have been withdrawn. They have been replaced with 35 USC 103(a) rejections in view of Bhattacharjya and Horikawa.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 9-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. These claims all recite a "lookup table" composed of points "determined to be impossible to be interpolated". See lines 4 and 6-7 of claim 9, for instance. The specification of the instant application, however, shows points that are possible to be interpolated (see figure 4f) being stored in a lookup table. The points on the curve part of fig. 4f would be impossible to be interpolated with a linear function, but would also be relatively

easy to interpolate with a non-linear function, such as arctangent(x). One skilled in the art would interpret such points as impossible to be linearly interpolated, but not impossible to be non-linearly interpolated. Therefore, such points are not "impossible to be interpolated" and claims 9-16 are not enabled.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhattacharjya (U.S. Patent 5,809,213) in view of Horikawa (U.S. Patent 5,774,130).

7. As to claim 9, Bhattacharjya discloses:

a lookup table which is composed of characteristic points which are points indicating the relationship between supplied image data and output image data (col. 5, lines 43-50; a lookup table is generated from "augmented sample points" which correspond to "characteristic points") which are determined to be impossible to be linearly interpolated when a process for converting image data is performed (fig. 2a, col. 10, lines 40-63; points are sampled because many points are impossible to interpolate; similarly some points are non-linearly interpolated because they are impossible to linearly interpolate);

and image data converting means for converting supplied image data by using said lookup table composed of the characteristic points into output image data (col. 5, lines 43-50; a linear interpolation function is used to convert the table value to a calibration values for a color reproduction system).

While Bhattacharjya discloses characteristic points that are impossible to be linearly interpolated, Bhattacharjya does not disclose characteristic points that are impossible to be interpolated in general. Horikawa, however, discloses assigning characteristic points where a curve changes more than a threshold angle (fig. 4a and 4b) so that one can perform interpolation between the points (col. 4, lines 33-44). While it is not explicitly stated, it is clear from the figures that these characteristic points could not be interpolated. For instance, one attempting to interpolate between points A and C on fig. 4a would not correctly interpolate point B. The motivation for only using characteristic points that cannot be interpolated is to allow a user to save time and still produce an image an image of acceptable quality if high quality is not desired (col. 1, lines 15-54).

While it is noted that Horikiawa is not directed to color management, one skilled in the art would recognize that the principles of interpolating a curve would still be very relevant to the problems Bhattacharjya and the instant invention are attempting to solve. It would have been obvious to one skilled in the art to modify Bhattacharjya to use characteristic points that cannot be interpolated in order to save time and computing power as taught by Horikawa.

8. As to claim 10, Bhattacharjya discloses an apparatus further comprising table development means for developing said lookup table into the multidimensional lookup table, wherein said image data converting means uses the multidimensional lookup table developed by said table development means to convert supplied image data into output image data (col. 15, lines 34-38).

9. As to claim 11, Bhattacharjya discloses an apparatus wherein said table development means develops said lookup table into said multidimensional lookup table in such a manner that all of characteristic points of said lookup table composed of the characteristic points are contained (col. 5, lines 43-50; a lookup table is generated from "augmented sample points" which correspond to "characteristic points").

10. As to claim 12, Bhattacharjya discloses an apparatus wherein said table development means develops said lookup table into the multidimensional lookup table such that data corresponding to grid points of said multidimensional lookup table is composed of output data of said lookup table and data of information of adjacent grid points for interpolating a portion between grid points (col. 15, lines 34-38; the 3-D lookup table is formed from the interpolation method described

earlier, which involves finding points between lookup table points and adjacent grid points from the lookup table).

11. As to claim 13, Bhattacharjya discloses an apparatus wherein said image data converting means uses an obtained multidimensional lookup table to convert supplied image data into output image data (see rejection to claim 10). Neither Bhattacharjya nor Horikawa discloses that said multidimensional lookup table is a compressed multidimensional lookup table formed by compressing said multidimensional lookup table. Further, neither Bhattacharjya nor Horikawa discloses restoring means provided which restores said compressed multidimensional lookup table into said multidimensional lookup table. However, Official Notice has been taken of the fact that compressing and restoring a color table is well-known in the art (see MPEP 2144.03). It would have been obvious to one skilled in the art to modify Bhattacharjya and Horikawa to compress and restore a color table in order to conserve space in memory.

12. As to claim 14, Bhattacharjya discloses an apparatus further comprising: table recording means for recording said multidimensional lookup table developed by said table development means in a memory (col. 15, lines 34-38; col. 8, lines 53-67); and updating means for operating said table development means and said table recording means when said lookup table composed of the characteristic points has been updated to update said multidimensional lookup table and rewrite the updated multidimensional lookup table on said memory, wherein said image data converting means uses said multidimensional lookup table recorded in said memory to convert supplied image data into output image

data (col. 10, lines 19-64; after first sample points are taken, additional sample points are added, the set of both corresponding to the "augmented" set of sample points).

13. As to claims 15 and 16, see the combined rejections of claims 9 and 10.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron M. Richer whose telephone number is (571) 272-7790. The examiner can normally be reached on weekdays from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMR
10/11/07

KEE M. TUNG
SUPERVISORY PATENT EXAMINER